

Claims

We claim:

1. A transaction management system for facilitating the managing and processing of transactions between multiple users and collection systems, said transaction management system comprising:

a transponder device configured for receiving and transmitting user information;

a reader module configured for communicating with said transponder device to facilitate assessment of said user information;

a transaction management module coupled to said reader module and being configured to authenticate said user information, and to authorize and secure payment transactions, wherein said transaction management module can expedite transaction processing by providing authorization of payment transactions while said transponder device is in communication with a toll collection system; and

a processing system configured for processing collected user transactions for the reconciliation and settlement of a user account based on secured processing by said transaction management module.

2. A transaction management system according to claim 1, wherein said transponder device further comprises:

a smart card device configured for storing user information including stored value acquired by the user;

a transponder unit configured for assessing user information stored on said smart card device, and for facilitating communications between said transponder device and said reader module; and

wherein said transaction management module is configured to facilitate the

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debiting of payment transactions directly to said smart card device through said transponder device, without the use of an online processing system.

3. A transaction management system according to claim 2, wherein said transaction management module further comprises:

a high speed processor device for controlling, processing and managing payment transactions;

a memory storage device configured for storing user information; and

a security module configured for facilitating secure transactions between the user and the collection system.

4. A transaction management system according to claim 3, wherein said security module is configured to generate a cryptogram for the payment transaction for use during authentication and authorization by said transaction management module.

5. A transaction management system according to claim 4, wherein said security module is further configured with a flexible interface for communicating with an external secure device comprising at least one of the smart card device and a crypto board, and configured for limiting access.

6. A transaction management system according to claim 2, wherein said transaction management module suitably comprises a connection manager for isolating a collection system from authentication, authorization and debiting operations performed between said transaction management module and said transponder device.

7. A transaction management system according to claim 2, wherein said transaction management module suitably comprises a transaction collection module for facilitating batch processing of transactions in said processing system.

8. A transaction management system according to claim 2, wherein said transaction management module suitably comprises a transaction context manager configured for maintaining context of a plurality of transaction collection devices.

9. A transaction management system according to claim 2, wherein said transaction management module suitably comprises a transaction normalization module configured for normalizing user information received.

10. A transaction management system according to claim 2, wherein said transaction management module suitably comprises a key management module for managing a plurality of keys for a plurality of transactions.

11. A transaction management system according to claim 2, wherein said transaction management system can be configured to communicate to an isolated collection system, said collection system comprising:

a reader module configured for receiving user information and for communicating to said transaction management module;

a controller device configured for controlling devices for restricting access by a user to another location; and

a toll host configured for communicating to said transaction management module and for providing verification and validation of payment transactions by the user, and wherein said collection system is isolated by said transaction management system from authentication, authorization and debiting operations performed between said transaction management module and said transponder device.

12. A method for facilitating the management of transactions between users and collection systems, said method comprising the steps of:

interfacing a smart card device containing user information to a transponder device to assess the user information;

initiating a payment transaction by establishing a communication connection between said transponder device and a reader module to enable transmission of the user information to a transaction management module;

providing a debit request from said transponder device to said transaction management module;

authorizing payment of the payment transaction by authenticating the user information contained on said transponder device, computing a payment amount based on the user information, and verifying sufficient funds exists on said smart card device; and

debiting said smart card device by the payment amount after said transponder device receives authorization instructions from said transaction management module.

13. A method according to claim 12, wherein said method further comprises the step of:

processing the payment transaction in a processing system to reflect debiting activity of said smart card device, said processing step occurring after said transaction management module has validated the payment transaction.

14. A method according to claim 12, wherein said method further comprises the steps of:

verifying the payment transaction by receiving the user information from said transponder device in a toll reader module, said toll reader module requesting verification from said transaction management module, and providing a verification of payment from said transaction management module; and

validating to a controller that the payment transaction has been verified such that said controller can permit access to a user for another location; and

wherein said payment transaction is completed while said transponder device is in communication with said toll reader module.

15. A method according to claim 14, wherein said validating step is performed prior to processing the payment transaction in said processing system.

16. A method according to claim 13, wherein said processing step can be performed in batch processing of payment transactions.

17. A method according to claim 12, wherein said step of authorizing payment comprises generating a cryptogram for the payment transaction for use during authentication and authorization by said transaction management module.

18. A method according to claim 12, wherein said method can be configured with multiple collection systems without requiring multiple communication protocols.

19. A method according to claim 12, wherein said method can be configured to process simultaneous, multiple transactions by providing multiple debit authorizations to multiple smart card devices without requiring validation from an online processing system.

20. A method according to claim 12, wherein said method can be configured for normalization any payment transactions into a common format for processing.

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